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ELASTICITY OF STEEL AND SILICA GLASS SPHERES UNDER GAS PRESSURE BY RUS

POSTER PRESENTATION

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This was a poster presentation. The poster pages are included in Volume 2 of these proceedings. An abstract for the presentation follows.

ABSTRACT

Elasticity of minerals under high pressure are of great importance from geophysical view point. In order to develop a new method to measure pressure dependence of elastic constants, resonant ultrasound spectroscopy (RUS) were applied to the condition of gas pressure. We used a three-layered spherical shell assembly of spherical sample-thin gas layer-spherical cavity container, which works to give a well-defined boundary condition in the analysis. The samples measured were spheres of steel and silica glass with diameter of 4-5 mm. Several modes, not only torsional but also spheroidal modes, were observed at least up to 200MPa (2kbar) under helium gas pressure, and pressure shifts of frequencies were obtained definitely in both samples. The data of the slope of pressure shift of frequency yield pressure derivatives of bulk modulus and shear modulus, dK/dP and dG/dP, which are in good agreement with previous data.